

CLAIMS

What Is Claimed Is:

1           1.       In a spectral ellipsometer having a source of multi-wavelength light, an  
2       optical system for directing the light, and a detecting optical system for receiving light  
3       after contact with a sample surface, the improvement comprising:

4                    an optical element for receiving the multi-wavelength light directed from  
5       the optical system and focusing the multiple wavelength light onto a single spot on the  
6       sample surface.

1           2.       The spectral ellipsometer of Claim 1 wherein the optical element is a  
2       spherical prism.

1           3.       The spectral ellipsometer of Claim 1 wherein the optical element is a  
2       polarizing prism with at least one curved surface for transmitting the multi-wavelength  
3       light.

1           4.       In a spectral ellipsometer, which includes a light incidence optical system  
2       for achieving spot incidence of polarization light of multi-wavelengths onto a sample  
3       surface and a detecting optical system for outputting information concerning the sample  
4       surface based on an amount of change in elliptical polarization reflected by the sample  
5       surface, the improvement comprising a prism polarizer employed in the light incidence  
6       optical system with a curved light-incident surface and a curved light-outgoing surface  
7       that is orthogonal with respect to a progressing direction of the respective direction of  
8       incident and outgoing light.

1           5.     A method of optically determining the characteristics of a sample  
2 surface, comprising:  
3                 providing a multi-wavelength light;  
4                 polarizing the multi-wavelength light;  
5                 directing the polarized multi-wavelength light to focus at an oblique  
6 angle on a single point on a sample surface;  
7                 measuring the reflected polarized light from the sample surface, and  
8                 determining the characterization from the change in polarization  
9 determined in the measured light.

1           6.     The method of Claim 5, wherein the directing step includes a spherical  
2 prism polarization.

1           7.     The method of Claim 6, wherein the polarizing prism has an incident  
2 convex surface and an exiting concave surface.